PROFESSORS ON THE BOARD: DO THEY CONTRIBUTE TO SOCIETY OUTSIDE THE CLASSROOM?

Charles H. Cho*
ESSEC Business School
1 AVENUE BERNARD HIRSCH
CS 50105 CERGY
95021 CERGY PONTOISE CEDEX
FRANCE
E-mail: cho@essec.edu

Jay Heon Jung
KAIST College of Business
Korea Advanced Institute of Science and Technology
Seoul, South Korea
E-mail: serenade09@business.kaist.ac.kr

Byungjin Kwak
KAIST College of Business
Korea Advanced Institute of Science and Technology
Seoul, South Korea
E-mail: bjkwak@business.kaist.ac.kr

Jaywon Lee
KAIST College of Business
Korea Advanced Institute of Science and Technology
Seoul, South Korea
E-mail: jaywonlee@business.kaist.ac.kr

Choong-Yuel Yoo
KAIST College of Business
Korea Advanced Institute of Science and Technology
Seoul, South Korea
E-mail: cyoo@business.kaist.ac.kr

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* Corresponding author

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ABSTRACT

According to our data, 38.5% of S&P 1500 firms have at least one professor on their boards. Given the lack of research examining the roles and effects of academic faculty as members of boards of directors (professor-directors) on corporate outcomes, this study investigates whether firms with professor-directors are more likely to exhibit higher corporate social responsibility (CSR) performance ratings. Results indicate that firms with professor-directors do exhibit higher CSR performance ratings than those without. However, the influence of professor-directors on firm CSR performance ratings depends on their academic background—the positive association between the presence of professor-directors and firm CSR performance ratings is significant only when their academic background is specialized (e.g., science, engineering and medicine). Finally, this positive association weakens when professor-directors hold an administrative position at their universities.

Keywords: academic; board of directors; corporate governance; corporate social responsibility; professor.

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Introduction

This study examines whether firms with academic faculty members on the board of directors (i.e., professor-directors) are more likely to exhibit higher corporate social responsibility (CSR) performance ratings. Anderson et al. (2011) find that board members with heterogeneous/diverse backgrounds bring valuable experience, knowledge, resources, and perspectives to the boardroom to make the board of directors monitor and/or advise managers more effectively. The extant literature on corporate governance and boards of directors suggests that board composition and its characteristics affect business outcomes such as corporate policy and financial performance (see Adams and Ferreira 2009; Baysinger et al. 1991; Cohen et al. 2012; Hill and Snell 1988; Masulis et al. 2012; Valentine and Fleishman 2008; Wang and Coffey 1992; Williams 2003).

Many firms appoint university professors as members of their board of directors. According to our data, 38.5% of S&P 1500 firms have at least one professor-director. As is the case for various types of directors documented in prior literature (e.g., female, foreigner, banker, analyst, and labor union member), university professors have specific characteristics that may affect firm performance (e.g., Francis et al. 2014). Tierney (1997) suggests that the three key responsibilities of professors are research, teaching, and service to the university and to the community, all of which contribute to society in the long-term. Moreover, academics are, in general, perceived to possess relatively higher ethical and socially responsible standards (Baumgarten 1982; Bowman 2005; Charnov 1987; Chickering and Gamson 1999; O'Connell 1998; Tierney 1997). Thus, university professors who possess some in-depth knowledge and a sense of responsibility about both business and society are likely to constitute an important factor that may affect corporate policy and/or performance.

However, there is little research directly examining the roles and effects of professor-directors on corporate outcomes (e.g., Francis et al. 2014). To the best of our knowledge, this study is the first to investigate whether professor-directors may affect firm outcomes with a specific focus on CSR performance ratings. Prior literature reveals that firm CSR performance is influenced by the characteristics of their board members. For example, firms with female board members are more likely to engage in CSR activities (Mesch et al. 2011; Williams 2003). Also, Valentine and Fleishman (2008) report that firms are more likely to be involved in CSR activities when the members on the corporate board have higher levels of professional ethical standards.

In this paper, therefore, we investigate whether the presence of professor-directors is associated with CSR performance ratings. Further, we examine *post-hoc* whether the impact of having professor-directors on CSR performance ratings depends on their academic background. Finally, we investigate whether having professor-directors who hold an administrative position (e.g., Dean, President, Chancellor, etc.) at their universities has a different impact on CSR performance ratings compared to professor-directors without such administrative positions.

The remainder of the paper is organized as follows. In the next section, we discuss the relevant prior literature and develop our research question. We then describe the data and present the descriptive statistics of our professor-director sample. Finally, we present our results and provide our conclusions and implications.

Prior Literature and Research Question

Board Heterogeneity and Corporate Outcomes

Numerous studies have investigated the link between board heterogeneity and corporate outcomes (e.g., Adams and Ferreira 2009; Anderson et al. 2011; Cohen et al. 2012; Fich 2005; Güner et al. 2008; Hillman et al. 2000, 2001; Masulis et al. 2012; Mesch et al.

2011; Williams 2003).[1] Following Anderson et al. (2011), we classify board heterogeneity into two categories – social heterogeneity (e.g., gender, age, and ethnicity) and occupational heterogeneity (e.g., education, experience, and profession) – and review the related literature as follows.

First, as to *social* heterogeneity in a board, a number of studies have examined the impact of director gender on firm performance and operations (e.g., Adams and Ferreira 2009; Mesch et al. 2011; Willams 2003). In particular, Williams (2003) investigates the impact of female directors on corporate philanthropy and finds that the number of female directors is positively associated with the level of a firm's involvement in corporate philanthropy. Williams classifies the overall philanthropy activities into four specific types of charitable giving (educational organizations; community service organizations; arts programs; and public policy programs) and reports that female directors exert their influence on corporate philanthropy, particularly to community service organizations and arts programs. Mesch et al. (2011) also investigate gender differences in charitable giving and find that both the likelihood and the amount of giving are greater for female than for male directors, even after controlling for psychological differences (i.e., empathic concern and principle of care measures). Adams and Ferreira (2009) examine the impact of female directors on corporate governance and firm performance and find that the average effect of female directors on firm performance is negative, although female directors provide stronger monitoring effectiveness.

Besides gender diversity, director nationality is also examined in relation to firm performance. Masulis et al. (2012) investigate directors' nationality and document that firms with foreign directors make better cross-border acquisitions if those foreign directors live in

[1] We use the terms "board diversity" and "board heterogeneity" interchangeably in this section.

the same region as that of the target firm, but report that the net effect of foreign directors on corporate governance and firm performance is negative.

Next, in the literature on *occupational* heterogeneity in a board, Hillman et al. (2000) argue that occupational differences in directors on the board not only strengthen expertise but also broaden linkages to important external constituencies. In particular, they examine US airline firms undergoing deregulation and conclude that firms respond to significant external environmental changes by altering board composition to reflect the shift in resource needs. Hillman et al. (2001) examine the relation between the presence of stakeholder directors (e.g., suppliers, employees, and community representatives) and stakeholder performance (i.e., corporate social responsibility) and find that certain types of stakeholder directors affect corporate social performance such as diversity and environment. Fich (2005) identifies various occupations of outside directors such as CEOs, professors, bankers, lawyers, and consultants and finds that (1) firms experience long-term performance improvement when they appoint CEOs of other firms as outside directors (i.e., CEO directors) but not when they appoint non-CEO directors and (2) the market reacts more strongly to the appointment of CEO directors than non-CEO directors. These results suggest that CEO directors are perceived in the market as sources of more valuable managerial talent and unique expertise.

Güner et al. (2008) examine whether bankers on the board have distinct roles on corporate decisions and report that lending bankers on the board can reduce the debt ratio of a firm while investment bankers increase bond issuances. More recently, Cohen et al. (2012) identify a new type of outside director, i.e., sell-side analysts. They identify outside directors who have covered a firm as sell-side analysts prior to their director appointment and find that firms with analysts on the boards tend to subsequently increase the level of earnings management, which indicates the poor monitoring performance of analyst directors.

Finally, Anderson et al. (2011) explore potential costs and benefits of heterogeneous

board and argue that board heterogeneity can bring more resources to the boardroom, which in turn improves the effectiveness or efficacy of monitoring and advising managers. They also compare the impact of social heterogeneity with that of occupational heterogeneity on firm performance and find that while both social and occupational heterogeneity have a positive effect on financial performance, the positive impact of occupational heterogeneity is 50% greater than that of social heterogeneity.

In sum, prior literature suggests that while corporate financial performance is affected by both social and occupational heterogeneity in the board, corporate social performance is primarily influenced by board social (e.g., gender) heterogeneity. As university professors have become a visible source of board heterogeneity (e.g., White et al. 2013; see our Table 1), we argue that it is important to examine the potential impact of professor-directors on corporate outcomes.

Professors and Corporate Outcomes

Several studies have investigated the role of professors on the board (e.g., Audretsch and Lehmann 2006; Audretsch and Stephan 1996; Duchin et al. 2010; Fich 2005; Francis et al. 2014; Güner et al. 2008; Jiang and Murphy 2007; White et al. 2013). For instance, Audretsch and Stephan (1996) focus on the advisory role of university-based scientists and argue that professors provide three functions to biotech firms: 1) knowledge transfer; 2) signaling the quality of the firm's research to both capital and resource markets; and 3) helping chart the scientific direction of the firm. Fich (2005) finds that while market reactions to director appointments are statistically significant when appointees are CEOs of other firms, these reactions lose significance when appointees are professors. Audretsch and Lehmann (2006) find that the likelihood of having professors on the board is affected by geographic proximity to a university and to an industry. More interestingly, Jiang and Murphy (2007) identify executives who were business school professors and document that firms with former

business professors as executives perform significantly better than firms without such executives. Güner et al. (2008) examine whether board members with financial expertise affect corporate policies (e.g., loan, public debt issuances, and acquisitions) and find that finance professors are significantly associated with lower pay-performance sensitivity, but not significantly associated with other policies. White et al. (2013) show that small- and mid-cap firms are more likely to appoint professors than large firms and that the financial market, on average, positively (insignificantly) reacts to the appointment of professors with science, medicine, and engineering (business) background. Francis et al. (2014) report that the presence of professors is positively associated with firm financial performance and that firms with business-related professors exhibit the best performance, whereas Duchin et al. (2010) document that academic board members do not affect firm financial performance.

In sum, while the aforementioned studies identify professors and examine their differential impacts on various aspects of firms, none to our knowledge solely focuses on the role and impact of professors on corporate social responsibility.

Characteristics of Professors and Corporate Social Responsibility

As other occupations, university professors have their own unique characteristics. Generally speaking, they are deemed socially obligated in diverse aspects by the public (Baumgarten 1982; Bowman 2005; Charnov 1987; Chickering and Gamson 1999; O'Connell 1998; Tierney 1997). For example, Baumgarten (1982) argues that university teachers have a social obligation to help other citizens both inside and outside the classroom—the academic profession should have higher ethical standards to seek social benefits in lieu of its own and, accordingly, university professors have obligations toward at least some segments of the community. Charnov (1987) asserts that professors are good citizens as they must take roles in being ethical professionals. Tierney (1997) argues that the three key responsibilities of professors are research, teaching, and service to the university as well as to the community –

all of which contribute to society in the long-term. As educators who exercise influence upon the present as well as future generations, professors are obligated to fulfill their own moral responsibilities (O'Connell 1998) and must respect the diversity of talents (Chickering and Gamson 1999). Finally, Bowman (2005) argues that a teacher is obligated to base his or her principles on universal ethics such as humility, honesty, trust, empathy, healing, community, and service. It is therefore plausible that professors have, or at least are expected to have, a higher standard of professional ethics, compared to people working in other professions.[2]

Nevertheless, there exist some studies that question the ethical standard of professors, particularly when it relates to professors specializing in the field of *business*. Indeed, business schools and professors have been widely criticized for failing to train responsible managers (Bennis and O'Toole 2005; Ghoshal 2005; Gonin 2007; Mitroff 2004; Owen 2005). Mitroff (2004) asserts that business educators are, at worst, guilty of being active accomplices and co-conspirators in corporate scandals. Ghoshal (2005) argues that business school faculty needs to own up to their roles in creating such scandals and denounces that these scandals happened because they had propagated amoral ideas and theories to their students. Similarly, Bennis and O'Toole (2005) argue that business schools fail to instill norms of ethical behavior into students. Also, Owen (2005) criticizes accounting professors for having neglected the importance of corporate accountability and transparency in the current education system. Finally, Gonin (2007) argues that the civic responsibilities of business scholars and business schools have been questioned as the recent ethical scandals in the business world arise—he attributes these ethical shortcomings to inadequate business education.

[2] The Roy Morgan "Image of Professions" Survey, conducted in the spring of 2013 in Australia, asked respondents to rate which professions they consider the most ethical and honest. Results indicated that among all 30 listed professions, university lecturers were ranked in the top one-third, which was higher than the rankings for business executives, lawyers, and accountants.

Because (1) individuals' perceptions or beliefs about professional ethics are positively associated with their attitude toward CSR and (2) CSR attitudes are also positively associated with involvement in CSR activities (Valentine and Fleishman, 2008), we argue that if professor-directors have higher (lower) levels of ethical standards, they are more (less) likely to promote CSR activities, hence firms are more (less) likely to engage in CSR activities. Given the relatively mixed evidence about the ethicality of professors, we take an exploratory approach to investigate whether firms with professors on their board of directors exhibit different levels of CSR performance ratings. We formulate our research question as follows:

> **Research Question:** Is the presence of professors on the board of directors associated with CSR performance ratings?

Sample and Data

Our sample is built from *RiskMetrics* over the period from 2003 to 2011, inclusive. We first identify professors on the boards of S&P 1500 firms by verifying the primary title and employer of individual directors' biographic information in the *RiskMetrics* database. We then manually collect each professor's detailed information such as affiliation, academic discipline, and whether the professor holds any administrative position at the university by searching and browsing through their school websites, personal blogs and the press websites (i.e., *Forbes* and *Businessweek*). With respect to identifying each professor's academic discipline, we first rely on their highest degree obtained; if this information is not available, we use their current department affiliation (e.g., economics, business, biology, or mathematics) as their academic discipline.

Next, we merge our professor sample with *KLD* database for CSR performance ratings. Considering that professors also play a major role in socialization of students, we believe that they will most likely influence "Community Donations", "Employee Benefits", and "Diversity Commitment" among the seven CSR dimensions in the *KLD* database.

Accordingly, our analysis focuses on the three aforementioned CSR dimensions.[3] In particular, we measure our CSR dependent variables as the net difference between strengths and weaknesses of a firm's scores in each of the three CSR dimensions from the *KLD* database.[4] Further, we supplement our sample with data from *RiskMetrics* (director and board characteristics), *COMPUSTAT* (fundamental information), *ExecuComp* (insider ownership), *Thomson Reuters 13F Institutional Holdings* (Institutional ownership), and *CRSP* (stock information). As the final step, we exclude observations with missing values and obtain a total of 10,297 firm-years, for 97,382 firm-year-directors. We winsorize all continuous variables at the 1% and 99% level to mitigate outlier effects. All variable definitions are described in the Appendix.

Table 1 shows the distributions of sample firms that have professor-directors by year and by industry. Panel A shows that the percentage of firms with at least one professor on the board is on average 38.51% in our sample. This indicates that a significant portion of S&P 1500 firms have at least one professor-director. Panel A does not indicate any noticeable trend in terms of the number or the proportion of firms with professor-directors over the sample period. Panel B shows the variation in the proportion of firms with professor-directors across the Fama-French 12 industry sectors. The healthcare (consumer durables) industry has the highest (lowest) proportion of firms that have professor-directors, with an average of 55.76% (20.25%) of the industry members having professor-directors.

[Insert Table 1 here]

[3] As a robustness test, we also check and find that our results are qualitatively the same even when we extend our analysis into the other four CSR dimensions (i.e., we use a dependent variable that sums up all scores in seven CSR dimensions of *KLD*).

[4] There may be potential concerns about the use of net difference scores, i.e., sum of strengths – sum of weaknesses (Allison 1990; Edwards and Parry 1993; Johns 1981). However, we choose to use such difference scores as our CSR dependent variables because several recent studies that use the *KLD* database have commonly done so (Barnea and Rubin 2010; Chen et al. 2008; Rekker et al. 2012). Following Barnea and Rubin (2010), we assume that all types of CSR strengths and weaknesses are equal in terms of their importance and costs. However, as a robustness check, we also replicate our empirical tests by decomposing our dependent variables of difference scores into strengths and weaknesses and find inferentially similar results. We discuss this issue further in the "Robust Test and Additional Issues" section.

Figure 1 reports the yearly distribution of 5,189 professor-directors by academic discipline and title. In Figure 1-A, we classify professors' academic discipline into seven different categories (i.e., Economics and Business; Engineering and Science; Medicine; Politics; Law; Education; and Others) and show yearly distributions of professors in each category.[5] Figure 1-A illustrates that while the number of professor-directors who major in other disciplines is relatively stable during the sample period, the number of Economics and Business professors is increasing (from 203 in 2003 to 248 in 2011). In fact, Economics and Business professors account for 41.5% of all professors in our sample and their number is almost ten times greater than that of Education professors. Engineering and Science professors and Medicine professors are the second and third largest groups, accounting for 17.69% and 12.50% of total professor-directors, respectively.

[Insert Figure 1 here]

Figure 1-B shows the yearly distributions of professor-directors by their respective administrative positions (i.e., President, Dean, Chair, Chancellor, Head, and Provost). Almost half (48.02%) of professors in our sample hold an administrative position, the most common of which is President (24.30%), followed by Dean (14.64%) and Chair (4.16%).

Results

Summary Statistics

Panel A of Table 2 provides summary statistics. Except for Employee Benefits, the CSR variables have positive mean values. The sample firms on average have 9.4 board members and 75.4% of the board members are independent directors. Female directors account for 11.4% of the positions on the board. Busy independent directors are outside directors who hold at least three or more directorships in other firms (Masulis et al. 2012) and they account for 3.5% of directors. We also find that 3.4% of our firms have an independent

[5] We classify majors into seven categories in a mutually exclusive and collectively exhaustive way.

director who holds more than 5% of a firm's outstanding shares, whereas 57.6% of firms have CEO/Chairman duality. Finally, the mean proportion of professor-directors on the board is 5.1%. Other firm characteristics are consistent with prior literature that covers S&P 1500 firms (e.g., Adams and Ferreira 2009; Masulis et al. 2012).

Panel B of Table 2 provides a comparison between firms with and firms without professor-directors. Firms with professors on their board appear to outperform firms without such professor-directors with regards to all CSR performance rating measures (i.e., Community Donations, Employee Benefits, Diversity Commitment, and the composite measure of CSR). Also, firms with professor-directors have larger boards, more female directors, and more independent directors than those without; log (Sales) is significantly higher in firms with professor-directors than those without, indicating that large firms are more likely to appoint professor-directors than small firms. Finally, firms with professor-directors are more mature than those without (30.9 versus 24.9 years), and the return volatility of firms with professor-directors is significantly lower than that of firms without (0.105 versus 0.114). Overall, results in Panel B of Table 2 suggest that the presence of professors on the board may be influenced by certain firm characteristics. Hence, in our regression models, we control for various firm characteristics that may influence firms' decision to appoint professors on their boards.

[Insert Table 2 here]

The Impact of Professor-Directors on CSR Performance Ratings

We begin our analysis using the following Ordinary Least Squares (OLS) regression model:

$$\begin{aligned}\text{CSR Performance Ratings} = {} & \beta_0 + \beta_1\ \text{DPROF (or PctPROF)} + \beta_2\ \text{BoardSize} + \beta_3\ \text{PctFemale} \\ & + \beta_4\text{PctOutsider} + \beta_5\ \text{PctBusyIndepDir} + \beta_6\text{IndDirBlock} + \beta_7\ \text{CEOChair} \\ & + \beta_8\ \text{Market-to-Book} + \beta_9\text{Log (Sales)} + \beta_{10}\ \text{ROA} + \beta_{11}\ \text{Leverage} + \\ & \beta_{12}\text{FirmAge} + \beta_{13}\ \text{ReturnVolatility} + \beta_{14}\ \text{InsiderOwnership} + \beta_{15}\ \text{InstitutionalOwnership}\end{aligned}$$

+ Year dummies + Industry dummies + ε.

The above model determines CSR performance ratings as a function of the presence of professor-directors (i.e., DPROF and PctPROF), board-, and firm-specific characteristics. To mitigate concerns that the impact of professor-directors on CSR performance ratings may be driven by correlated omitted variables, we control for several CSR determinants suggested by prior research: proportion of inside directors (Wang and Coffey 1992), insider ownership and institutional ownership (Barnea and Rubin 2010; Oh et al. 2011), firm size (Amato and Amato 2007), and other board- and firm- characteristics such as CEO/Chair duality, firm age, profitability, and leverage (Chen et al. 2008; Barnea and Rubin 2010). We also include year dummies and SIC 2-digit industry dummies to capture year and industry fixed effects (e.g., Amato and Amato 2007). In addition, we use standard errors clustered by firm to correct for intra-group correlations of residuals within firms (Petersen 2009).

Table 3 presents the OLS regression results. We examine the relation between the presence of professor-directors and CSR performance ratings using four different measures of CSR. Except for column (1), which shows an insignificant relation between Community Donations and an indicator for professor-directors on the board (DPROF), columns (3), (5), and (7) provide evidence that firms with at least one professor-director have a significantly higher level of CSR performance ratings. In columns (2), (4), (6), and (8), we examine whether CSR performance ratings increase as more professors sit on the board (PctPROF), and find positive and statistically significant results.

Overall, our control variables show consistent results with prior studies (e.g., Barnea and Rubin 2010; Mesch et al. 2011; Oh et al. 2011; Williams 2003).[6] For example, firms with a greater number of female directors (PctFemale) and firms with better financial performance

[6] To ensure that multicollinearity is not a significant issue in our study, we check and find that all VIFs (variance inflation factors) in the OLS regressions without year and industry fixed effects are below 1.8, implying no significant multicollinearity issue. We also find that our results remain qualitatively the same when all control variables are dropped.

engage more actively in CSR activities. Also, insider ownership is negatively and significantly associated with CSR performance ratings, supporting the notion that firms are reluctant to invest in CSR activities when insiders should bear high CSR expenditure.

[Insert Table 3 here]

CSR and Professor-Directors from Different Academic Disciplines

While we posit that professors have, or at least are expected to have, a higher level of social obligations than other occupations, it is important to recognize that professors constitute a group of heterogeneous professionals who possess different academic training, discipline knowledge, and scholarly experience (White et al. 2013). Accordingly, in this section, we examine the heterogeneous characteristics of professors and investigate whether the impact of professor-directors on CSR performance ratings varies with their academic backgrounds.

Following White et al. (2013), we first classify professor-directors into two groups based on their academic fields of study: 1) *business* professors whose academic backgrounds correspond to either business, economics or law; and 2) *specialized* professors whose academic backgrounds correspond to either engineering, science or medicine. We then measure the proportion of business professor-directors {PctPROF (Business)} and that of specialized professor-directors {PctPROF (Specialized)} to examine whether they have heterogeneous impacts on CSR performance ratings.

Table 4 presents the results of OLS regressions where dependent variables are CSR performance ratings and the variables of interest are the percentage of either business or specialized professor-directors out of all board members. Interestingly, we find a clear distinction in the coefficients on the percentage of professor-directors between business and specialized academic backgrounds. That is, while the coefficients on PctPROF (Specialized) are all significantly positive as we find in Table 3, none of the coefficients on PctPROF

(Business) are significant, indicating that business professors may be relatively less ethical than professors in other disciplines.

The significant and positive impact of specialized professors (e.g., engineering, science, and medicine) on CSR performance ratings can be explained by their relatively high ethical standards as educators as well as by the very nature of their academic disciplines (engineering, science, and medicine) that cares for firm long-term prosperity through such CSR activities as R&D, for example.[7] However, in stark comparison, the insignificant results for business professors can be interpreted in line with the wide criticism of business professors and business schools (see Bennis and O'Toole 2005; Ghoshal 2005; Gonin 2007; Mitroff 2004; Owen 2005). In addition, considering that business professors are those who possess general business expertise that enables them to play both monitoring and advisory roles (White et al. 2013), they may be less likely to invest in CSR activities if they view such spending as less valuable for shareholders' wealth.

[Insert Table 4 here]

CSR and Professor-Directors with Administrative Positions

White et al. (2013) suggest that professors have heterogeneous characteristics conditional on whether they hold an administrative position (e.g., President, Dean, Department Chair, etc.) within their universities.[8] Thus, in this section, we examine the different characteristics of professor-directors with an administrative position ("administrative professor-director", hereafter) and determine whether and how their impact

[7] Audretsch and Stephan (1996) argue that university-based scientists provide three functions to biotech firms: 1) knowledge transfer, 2) signaling the quality of the firm's research to both capital and resource markets, and 3) help chart the scientific direction of the firm. Thus, specialized professors' role is to provide advice to make a firm succeed in the long run.

[8] White et al. (2013) introduce some characteristics of administrative professor-directors. For example, administrative professors may provide appointing firms with beneficial social networks and additional access to resources but, at the same time, they may not be able to provide highly technical and industry-specific advice as it is likely that they have not been active in terms of research since they became administrators at their universities.

on CSR performance ratings is different from that of professor-directors without such position.

Following White et al. (2013), we first divide professor-directors into two groups based on whether professors hold an administrative position at their universities. Our variables of interest are the proportion of administrative professor-directors {PctPROF (Admin)}, and that of non-administrative professor-directors {PctPROF (No Admin)}.

Table 5 presents the OLS regression results. In column (1) where the dependent variable is Community Donations, both of the percentages of professor-directors with and without an administrative position show positive and significant coefficients, implying that the presence of professors, regardless of whether they hold such position or not, indeed increases firm CSR performance ratings with respect to community donations.

In columns (2) and (3), while the percentage of non-administrative professor-directors shows positive and significant coefficients on Employee Benefits and Diversity Commitment, the percentage of administrative professor-directors does not exhibit statistically significant coefficients for those dimensions.[9] Finally, when a composite measure of CSR is used as a dependent variable in column (4), both variables are significantly positive but the impact of administrative professor-directors on CSR is only statistically marginal at the 10% level.

Overall, Table 5 shows that the impact of the presence of professor-directors on CSR performance ratings is less clear when professors are administrators at their universities. One possible explanation is that professors with an administrative job are busier with their duties than professors who do not hold such positions within their universities. Thus, administrative professor-directors may have fewer opportunities to exert their influence on firm CSR activities than other professor-directors. Indeed, we find that administrative professor-

[9] According to *KLD* guidelines, 'diversity commitment' ratings take into account whether a firm hires women, disabled or gays/lesbians. However, these ratings do not consider occupational diversity such as hiring professors on the board. Thus, it is less likely that the presence of professor-directors on the board automatically increases its ratings for 'diversity commitment'.

directors hold a significantly higher number of directorships in other firms than non-administrative professor-directors (0.652 versus 0.495 directorships in other firms, *t*-stat = 6.48).[10]

[Insert Table 5 here]

Robustness Test and Additional Issues

Endogeneity of Professor-Directors on the Board

While the main purpose of our study is to examine the association between the presence of professor-directors and firm CSR performance ratings as reported in Table 3, there may be concerns about a potential endogeneity (or, reverse causality) issue in our OLS regression results. That is, firms with high CSR performance ratings may simply seek and appoint professors as directors on their boards, or professors may have strong incentives to join CSR-friendly firms for their reputation. If such factors are correlated with CSR performance ratings but not adequately captured by our control variables, then the presence of professor-directors will be correlated with error terms of the OLS regressions, thereby biasing our OLS coefficient estimates. We use the instrumental variable (IV) approach to address this endogeneity concern. The instrumental variable should be correlated with the presence of professor-directors, but not with error terms in the OLS regression of CSR performance ratings. Referring to the instrument for the presence of *female* directors introduced by Adams and Ferreira (2009), we define our instrumental variable as the percentage of non-professor-directors on the board who sit on other boards on which there are professor-directors (CONNPROF).[11] Our instrumental variable is based on the intuition that, as argued by Adams and Ferreira (2009) for female directors, professor-directors also do not have enough strong business networks to obtain board directorship appointments in

[10]Although statistically insignificant, we also find that the percentage of having attendance problem (i.e., attended less than 75% of board meetings) is higher for professor-directors with administrative positions than professors-directors without administrative jobs (1.24% vs. 1.00%, t=0.83).
[11]Adams and Ferreira (2009) use an instrumental variable for the presence of female directors as the fraction of male directors with board connections to female directors.

comparison to other business-related occupations (e.g., executives, bankers, and lawyers). Thus, if some non-professor-directors have networks or connections to a university or professors, it is more likely that professors will have better opportunities to sit on the board of the firm, thereby increasing the proportion of professor-directors. As we cannot measure the individual directors' *actual* social connections to a university or professors, we alternatively rely on the information of board directorships provided by *RiskMetrics* and assume that a director has social network to professors if he or she sits on the board of other firms where professors also serve as directors at the same time.

Table 6 presents the results of two-stage least squares (2SLS) regressions. Column (1) reports the first stage of 2SLS regression. We estimate the OLS regression where the dependent variable is the percentage of professor-directors on the board (PctPROF). We find a positive and significant coefficient (0.031, *t*-stat = 2.870) on CONNPROF and the result indicates that our instrumental variable can properly explain the endogenous variable, i.e., the presence of professor-directors.

Columns (2)-(5) report the second stage results of 2SLS regressions where dependent variables are CSR performance ratings and the endogenous variable (PctPROF) is replaced with the fitted value (*Fitted*-PctPROF) obtained from the first stage regression. We find that the percentage of professor-directors is still significantly and positively associated with CSR performance ratings, suggesting that professor-directors indeed appear to increase the level of firm CSR performance ratings. All other specifications are identical to those in Table 3.

[Insert Table 6 here]

CSR and Temporal Change in the Number of Professor-Directors

In the preceding section we provide some statistical evidence that professor-directors do positively affect firm CSR performance ratings. To further investigate the causal relationship between a firm's CSR and the presence of professor-directors, we conduct

additional tests by incorporating temporal dimensions in this section. That is, we capture the temporal change in the presence of professor-directors and examine its relation to firm CSR activities.

First, to allow for a rather long-term oriented CSR investment, we measure the change in the number of professor-directors over two consecutive years {∆NPROF (t)} and include two lags of the change in the number of professor-director, ∆NPROF (t-1) and ∆NPROF (t-2), together in the regression models.[12] The untabulated results indicate that the change in the number of professor-directors in year *t* is positively associated with the composite measure of CSR at 10 percent level. Further, the change in the number of professor-directors in year *t* is more strongly and positively associated with the strengths of CSR performance ratings (i.e., strengths in community donations, diversity community, and CSR), suggesting that the change in the number of professor-directors is associated with the level of firm CSR performance ratings this year.[13]

Second, we measure the dismissal of professor-directors from the board as an indicator that equals one if a firm begins to have no professors on its board from this year while it previously had, and zero otherwise {DismissPROF (t)}. We then estimate the regressions of CSR performance ratings on DismissPROF (t), DismissPROF (t-1), DismissPROF (t-2) and control variables. Untabulated results show that the past dismissal of professor-directors is negatively (positively) and significantly associated with the current level of firm CSR net performance and strengths (weaknesses). Hence, these results suggest that firm CSR performance ratings tend to weaken if professor-directors are dismissed in the

[12] We find inferentially similar results when the change in the proportion of professor-directors (∆PctPROF) is used.

[13] In the next section, we provide the rationale or justification for decomposing our CSR dependent variables (in the form of net difference scores) into CSR strengths and weaknesses.

preceding years.[14] Overall, our additional analyses suggest that the presence of professor-directors appear to affect firm CSR performance ratings.[15]

CSR Strengths vs. Weaknesses as Dependent Variables

Our dependent variables are measured as the net difference scores between CSR strengths and weaknesses, the metrics of which are widely used in prior literature that relies on the *KLD* database (e.g., Barnea and Rubin 2010; Chen et al. 2008; Rekker et al. 2012). However, a few studies have demonstrated that difference scores suffer from methodological problems such as potential unreliability, systematic and spurious correlations with their components (Allison 1990; Edwards and Parry 1993; Johns 1981). Thus, in this section, we rerun our tests using the dependent variables decomposed into strengths and weaknesses in CSR. We then examine which aspect of CSR performance ratings (i.e., strengths vs. weaknesses) is actually affected by the presence of professor-directors. Untabulated results show that strengths in CSR performance ratings are all positively and significantly associated with the presence of professor-directors. However, none of the weaknesses in CSR performance ratings show statistical significance with respect to the presence of professor-directors, although the signs of their relations are all negative as expected. Taken together, these results imply that our findings (using net difference scores) remain qualitatively the same as when dependent variables are decomposed into strengths and weaknesses, and that professor-directors are primarily associated with firm CSR strengths.

[14] We were not able to find clear evidence that firm CSR performance ratings increase when a new professor-director is added to the board.

[15] We acknowledge some possible limitations in this section. To examine how CSR activities are associated with temporal changes in the presence of professor-directors, we adopt and modify a research design that LaFond and Watts (2008) use (i.e., CSR (t) = ∆Prof (t) + ∆Prof (t-1) + ∆Prof (t-2) + controls (t-1)) in which the dependent variable is the CSR rating level while the variables of interest are the longitudinal changes in the presence of professor-directors. As CSR scores provided by the *KLD* database are relatively sticky and insensitive over time, taking the change (∆) of *KLD* variables does not capture a subtle change in CSR ratings over two consecutive years.

Conclusions and Implications

Over the last decade, more than one third of S&P 1500 firms have appointed professors as directors on their boards. The extant literature provides relatively mixed evidence about the ethicality of professors. On one hand, professors are generally perceived as having, or at least being expected to have, a relatively higher standard of professional ethics (Baumgarten 1982; Bowman 2005; Charnov 1987; Chickering and Gamson 1999; O'Connell 1998; Tierney 1997). On the other hand, business professors have been widely criticized for not taking the initiatives in cultivating morality and setting an ethical example for their students (Bennis and O'Toole 2005; Ghoshal 2005; Gonin 2007; Mitroff 2004; Owen 2005). The relatively mixed findings have indeed stemmed our motivation to conduct this study examining whether firms with academic faculty members on the board of directors (i.e., professor-directors) exhibit different CSR performance ratings. Our results show a significant and positive association between the presence of professor-directors and firm CSR performance ratings. Further, allowing for heterogeneous characteristics of professors (e.g., White et al. 2013), we find that professor-directors affect firm CSR performance ratings differently depending on their academic disciplines. That is, while specialized professor-directors (i.e., engineering, science, and medicine) have a positive effect on firm CSR performance ratings, the presence of business professor-directors (i.e., business, economics, and law) does not appear to affect firm CSR performance ratings. This finding could be interpreted in line with the prior literature documenting the wide criticism that business professors have neglected the importance of corporate accountability in their education and failed to train responsible managers. We also find that professor-directors who hold an administrative position within their university exert less influence on firm CSR activities than professor-directors without such position. Given that administrative professors hold significantly more directorships in other firms than non-administrative professors, this

finding may suggest that administrative professors have fewer opportunities to exert their ethical influence on a firm's CSR activities. Our overall results hold even after a series of robustness tests including issues related to endogeneity. Finally, we find that the change in the number of professor-directors is significantly and positively associated with the current level of firm CSR performance ratings and that professor-directors primarily affect and improve the strengths of CSR performance ratings.

Our study contributes to the extant literature in several aspects. First, we document that a less-investigated but important occupation (i.e., university professor) among outside directors has an impact on CSR performance ratings. Considering that a significant portion of firms appoint at least one academic on their board of directors, we believe that it is worthwhile to investigate whether the presence of professor-directors affects corporate outcomes. Second, this study assesses how a particular type of corporate governance characteristic and its projected role link to a corporate activity, namely corporate social responsibility. Last but certainly not least, we document how professors can potentially contribute to society outside the classroom by showing the positive impact of professor-directors on firm CSR performance ratings. This implies that CSR performance ratings, on average, are likely to increase with professors appointed in corporate boardrooms.

As in all empirical investigations, ours is subject to some limitations. Our study focuses on a sample of relatively large US firms (i.e., S&P 1500). Given that interest in corporate social responsibility as well as the role and influence of professors may vary across countries (owing to their differences in terms of culture, business regulations and politics), the extent to which the results are generalizable outside the US setting cannot be determined. Further, as mentioned earlier, the *KLD* database is limiting in that the provided rating scores are relatively sticky and insensitive over time; hence, it was not desirable to take the change (Δ) of *KLD* variables to capture a subtle change in CSR ratings over two consecutive years.

Finally, we purely rely on archival data and quantitative analyses, and this does not necessarily give a complete picture and understanding with regards to the process of how professors may help firms make more socially responsible decisions. Accordingly, future research that may consider more qualitative explorations in the form of interviews and/or surveys would bring more insights on how professors on the board actually exert their moral values and influences into firms in undertaking CSR activities. Therefore, extensions of our work along each of these limiting dimensions mentioned above would appear to be warranted.

Appendix
Variable definitions

Variable	Description
Community Donations	The sum of strengths minus the sum of weaknesses in Community dimension of *KLD*.
Employee Benefits	The sum of strengths minus the sum of weaknesses in Employee Relations dimension of *KLD*.
Diversity Commitment	The sum of strengths minus the sum of weaknesses in Diversity dimension of *KLD*.
CSR	The sum of strengths minus the sum of weaknesses in three dimensions of *KLD* (i.e., Community, Employee Relations, and Diversity).
PctPROF	The percentage of professor-directors on the board.
DPROF	1 if a firm has professor-directors on the board, and 0 otherwise.
PctPROF (Business)	The percentage of business professor-directors on the board. Business professor is a professor of business, economics, or law.
PctPROF (Specialized)	The percentage of specialized professor-directors on the board. Specialized professor is a professor of engineering, science, or medicine.
PctPROF (Admin)	The percentage of professor-directors who hold administrative positions at their universities (e.g., President, Dean, Chair, Chancellor, Head, and Provost).
PctPROF (No Admin)	The percentage of professor-directors who do not hold administrative positions at their universities.
BoardSize	The number of directors sitting on the board.
PctFemale	The percentage of female directors on the board.
PctOutsider	The percentage of independent directors on the board.
PctBusyIndepDir	The percentage of independent directors who hold 3 or more other directorships in the *RiskMetrics* universe firms.
IndDirBlock	1 if a firm has an independent director who holds more than 5% of shares outstanding and 0 otherwise.
CEOChair	1 if a CEO is also the chairman of the board, and 0 otherwise.
Market-to-Book	The ratio of market value to book value of assets, measured at the fiscal year end.
Log (Sales)	Natural logarithm of sales, measured at the fiscal year end.
ROA	Operating income before depreciation scaled by book value of total assets, measured at the fiscal year end.
Leverage	The book value of short-term and long-term debt divided by the book value of total assets, measured at the fiscal year end.
FirmAge	The number of years the firm has appeared in *CRSP*.
ReturnVolatility	Standard deviation of a firm's previous 60-month stock returns.
InsiderOwnership	The sum of shares held by top 5 executives divided by the total number of shares outstanding.
InstitutionalOwnership	The average percentage of shares held by institutions during the fiscal year.
CONNPROF	The percentage of non-professor-directors on the board who sit on other boards on which there are professor-directors.

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Figure 1
Yearly distributions of professor-directors at S&P 1500 firms by academic disciplines and administrative positions

Figure 1-A
Number of professor-directors by academic disciplines

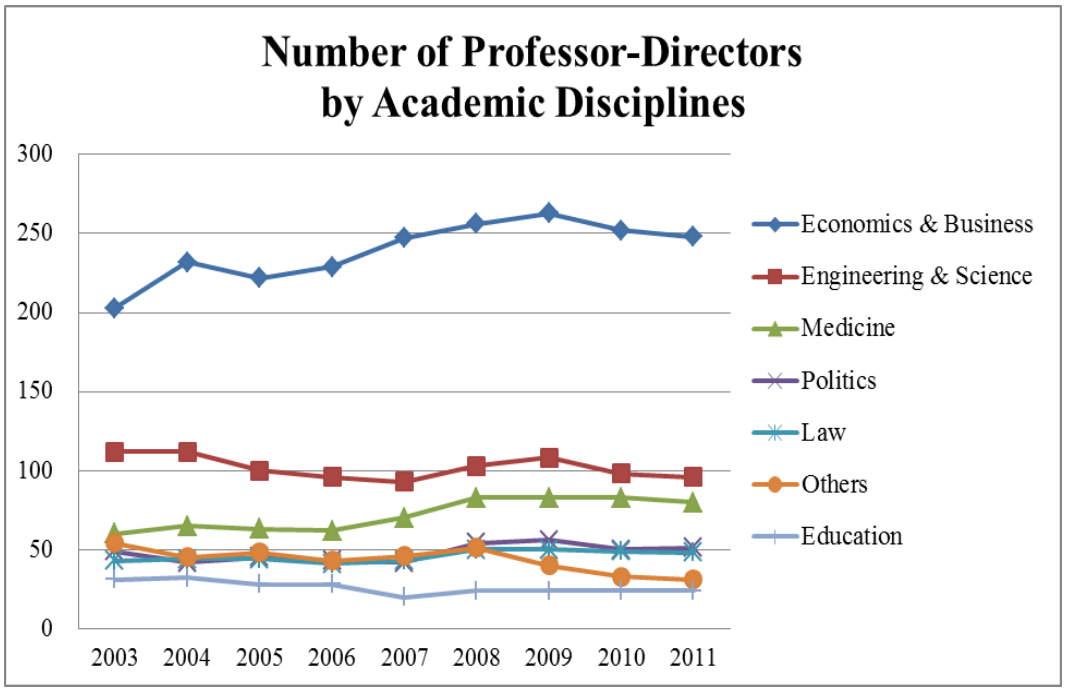

Figure 1-B
Number of professor-directors by administrative positions

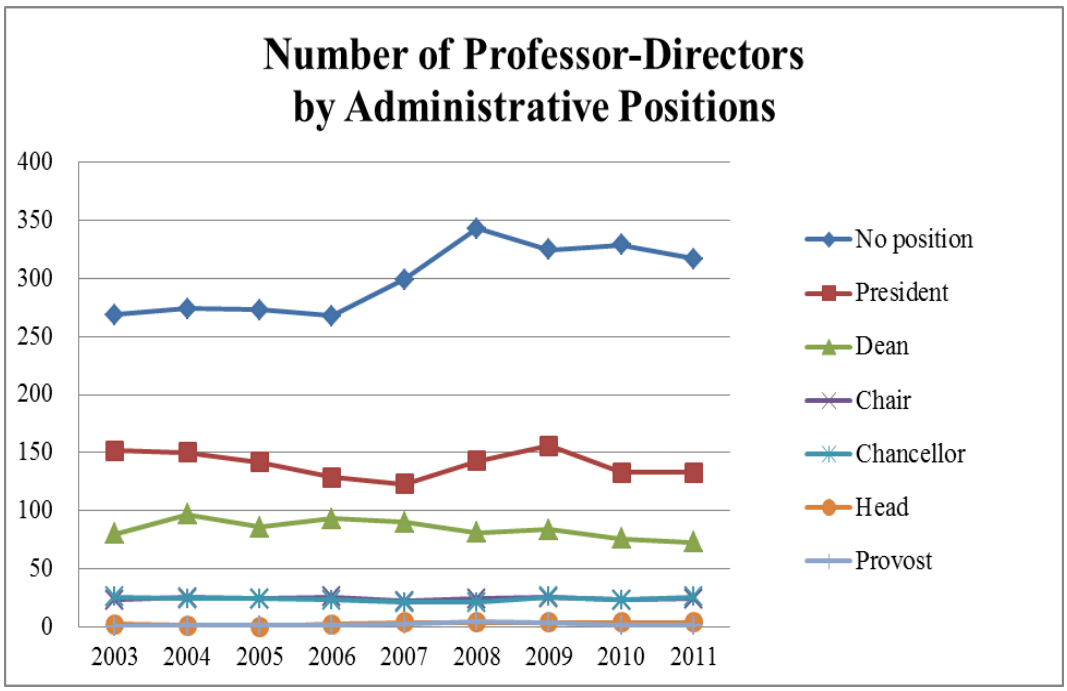

Table 1
Distributions of sample firms by year and industry

Panel A: Distribution of sample firms by year

Year	# of firms	# of firms with at least one professor	# of firms with multiple professors	% of firms with at least one professor	Mean % of professors on a board, conditional on the professor presence
2003	1,029	428	97	41.59%	13.16%
2004	1,109	449	99	40.49%	13.18%
2005	1,023	425	102	41.54%	13.29%
2006	1,053	420	100	39.89%	13.16%
2007	1,117	428	106	38.32%	13.54%
2008	1,213	465	130	38.34%	13.69%
2009	1,259	466	131	37.01%	13.63%
2010	1,243	447	109	35.96%	13.38%
2011	1,251	437	107	34.93%	13.28%
2003-2011	10,297	3,965	981	38.51%	13.37%

Panel B: Distribution of sample firms by Fama-French 12 industry classification

Industry	# of firm-years	# of firm-years with at least one professor	% of firm-years with at least one professor, among all firm-years in the same industry
Consumer NonDurables: Food, Tobacco, Textiles, Apparel, Leather, and Toys	629	254	40.38%
Consumer Durables: Cars, TVs, Furniture, and Household Appliances	237	48	20.25%
Manufacturing: Machinery, Trucks, Planes, Furnitures, and Papers	1,362	480	35.24%
Energies: Oil, Gas, Coal Extraction, and Related Products	427	124	29.04%
Chemicals and Allied Products	355	160	45.07%
Business Equipment: Computers, Software, and Electronic Equipment	1,847	610	33.03%
Telephone and Television Transmission	157	71	45.22%
Utilities	607	292	48.11%
Shops: Wholesale, Retail, and Some Services (Laundries, Repair Shops)	1,252	422	33.71%
Healthcare, Medical Equipment, and Drugs	859	479	55.76%
Finance: Banking, Insurance, Real Estate, and Trading	1,393	618	44.37%
Others: Mines, Transportation, Hotels, Business Services, and Entertainment	1,172	407	34.73%
Total	10,297	3,965	38.51%

Note The sample consists of 10,297 firm-year observations from 2003 to 2011. The table presents distributions of sample firms by year and industry.

Table 2
Summary statistics

Panel A:Summary statistics					
Variable	Mean	Std Dev	Minimum	Median	Maximum
CSR performance					
Community Donations	0.116	0.615	-2	0	5
Employee Benefits	-0.150	0.933	-4	0	5
Diversity Commitment	0.364	1.526	-3	0	7
CSR	0.363	2.578	-8	0	18
Board characteristics					
PctPROF	0.051	0.074	0	0	0.286
DPROF	0.385	0.487	0	0	1
BoardSize	9.442	2.378	5	9	17
PctFemale	0.114	0.095	0	0.111	0.375
PctOutsider	0.754	0.127	0.364	0.778	0.923
PctBusyIndepDir	0.035	0.077	0	0	0.375
IndDirBlock	0.034	0.181	0	0	1
CEOChair	0.576	0.494	0	1	1
Firm characteristics					
Market-to-Book	2.651	2.253	0.496	1.988	15.033
Log (Sales)	7.602	1.483	4.585	7.462	11.423
ROA	0.131	0.083	-0.079	0.125	0.389
Leverage	0.199	0.158	0	0.189	0.637
FirmAge	27.2	19.3	3	21	84
ReturnVolatility	0.111	0.047	0.041	0.102	0.278
InsiderOwnership	0.026	0.056	0.00002	0.007	0.341
InstitutionalOwnership	0.785	0.161	0.320	0.812	1

Note The sample consists of 10,297 firm-year observations from 2003 to 2011. Variable definitions are in the Appendix. Panel A presents summary statistics for the sample. Panel B presents comparisons of means and medians of firm-level characteristics between firm-years with and without professor-directors. ***, **, and * indicate statistical significance based on two-sided tests at the 1%, 5%, and 10% level, respectively.

Table 2
Summary statistics (*continued*)

Panel B: Comparison of firms with professor-directors to those without						
Variable	Firm-years with professor-directors (N=3,965)		Firm-years without professor-directors (N=6,332)		Difference	
	Mean	Median	Mean	Median	*t*-statistic	*z*-statistic
Community Donations	0.179	0	0.076	0	(7.79)***	(7.32)***
Employee Benefits	-0.098	0	-0.183	0	(4.35)***	(3.61)***
Diversity Commitment	0.739	0	0.129	0	(19.36)***	(19.09)***
CSR	0.864	0	0.049	0	(14.86)***	(14.00)***
BoardSize	10.03	10	9.07	9	(19.85)***	(20.23)***
PctFemale	0.134	0.125	0.101	0.100	(17.91)***	(17.73)***
PctOutsider	0.771	0.800	0.744	0.750	(10.41)***	(10.37)***
PctBusyIndepDir	0.041	0	0.032	0	(5.62)***	(7.09)***
IndDirBlock	0.025	0	0.040	0	(-4.13)***	(-3.92)***
CEOChair	0.606	1	0.557	1	(4.95)***	(4.92)***
Market-to-Book	2.657	1.995	2.647	1.983	(0.22)	(-0.31)
Log (Sales)	7.962	7.831	7.377	7.222	(19.55)***	(19.64)***
ROA	0.129	0.123	0.132	0.126	(-1.50)	(-1.65)*
Leverage	0.205	0.195	0.196	0.185	(2.78)***	(3.48)***
FirmAge	30.9	25	24.9	19	(14.89)***	(14.40)***
ReturnVolatility	0.105	0.096	0.114	0.106	(-9.46)***	(-10.85)***
InsiderOwnership	0.023	0.005	0.028	0.008	(-4.58)***	(-11.39)***
InstitutionalOwnership	0.774	0.799	0.791	0.822	(-5.25)***	(-5.79)***

Note The sample consists of 10,297 firm-year observations from 2003 to 2011. Variable definitions are in the Appendix. Panel A presents summary statistics for the sample. Panel B presents comparisons of means and medians of firm-level characteristics between firm-years with and without professor-directors. ***, **, and * indicate statistical significance based on two-sided tests at the 1%, 5%, and 10% level, respectively.

Table 3
OLS regression analysis - CSR performance and professor-directors on the board

	Dependent variable							
	Community Donations		Employee Benefits		Diversity Commitment		CSR	
Independent variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
DPROF	0.034		0.079**		0.105**		0.227**	
	(1.521)		(2.208)		(2.324)		(2.548)	
PctPROF		0.375**		0.635**		0.700**		1.911***
		(2.448)		(2.544)		(2.355)		(3.074)
BoardSize	0.014**	0.015**	-0.003	-0.001	0.042***	0.045***	0.056**	0.062***
	(2.252)	(2.405)	(-0.362)	(-0.111)	(3.482)	(3.739)	(2.474)	(2.746)
PctFemale	0.453***	0.436***	0.492**	0.473**	5.427***	5.413***	6.963***	6.900***
	(3.783)	(3.646)	(2.349)	(2.288)	(18.933)	(18.884)	(12.563)	(12.536)
PctOutsider	0.151*	0.148*	-0.168	-0.169	0.435**	0.438***	0.421	0.417
	(1.818)	(1.784)	(-1.217)	(-1.222)	(2.543)	(2.553)	(1.341)	(1.323)
PctBusyIndepDir	0.215	0.225	-0.286	-0.271	0.088	0.102	-0.659	-0.612
	(1.316)	(1.380)	(-1.398)	(-1.328)	(0.322)	(0.374)	(-1.273)	(-1.183)
IndDirBlock	-0.025	-0.024	-0.129*	-0.129*	-0.036	-0.037	-0.242	-0.240
	(-0.621)	(-0.594)	(-1.684)	(-1.671)	(-0.311)	(-0.318)	(-1.179)	(-1.163)
CEOChair	0.010	0.011	-0.068**	-0.067**	0.032	0.034	-0.018	-0.015
	(0.558)	(0.589)	(-2.171)	(-2.142)	(0.839)	(0.869)	(-0.235)	(-0.196)
Market-to-Book	0.012**	0.012**	0.015*	0.016*	0.057***	0.057***	0.109***	0.109***
	(2.056)	(2.067)	(1.952)	(1.956)	(4.339)	(4.333)	(4.539)	(4.533)
Log (Sales)	0.096***	0.095***	0.029	0.028	0.401***	0.401***	0.590***	0.587***
	(6.596)	(6.572)	(1.490)	(1.442)	(16.070)	(16.077)	(10.761)	(10.764)
ROA	-0.105	-0.104	0.666**	0.668**	-0.708**	-0.707**	-0.061	-0.057
	(-0.771)	(-0.765)	(2.490)	(2.499)	(-2.346)	(-2.343)	(-0.098)	(-0.092)
Leverage	-0.146**	-0.140*	-0.381***	-0.375***	-0.729***	-0.725***	-1.272***	-1.252***
	(-2.028)	(-1.951)	(-2.996)	(-2.950)	(-4.681)	(-4.659)	(-4.230)	(-4.169)
FirmAge	-0.002**	-0.002**	-0.001	-0.001	0.003*	0.003*	-0.003	-0.003
	(-2.131)	(-2.185)	(-0.882)	(-0.906)	(1.735)	(1.733)	(-0.704)	(-0.736)
ReturnVolatility	-0.276	-0.282	-0.396	-0.401	1.830***	1.829***	0.352	0.333
	(-1.214)	(-1.245)	(-1.057)	(-1.070)	(3.692)	(3.687)	(0.376)	(0.355)
InsiderOwnership	0.079	0.075	-0.571**	-0.572**	-0.588	-0.584	-1.633**	-1.639**
	(0.524)	(0.499)	(-2.181)	(-2.186)	(-1.588)	(-1.580)	(-2.458)	(-2.470)

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InstitutionalOwnership	-0.165**	-0.162**	-0.200*	-0.194*	-0.156	-0.149	-0.622**	-0.605**
	(-1.992)	(-1.963)	(-1.718)	(-1.672)	(-0.959)	(-0.915)	(-2.017)	(-1.966)
Intercept	-0.691***	-0.692***	-0.248	-0.261	-3.816***	-3.839***	-5.223***	-5.255***
	(-5.104)	(-5.158)	(-1.076)	(-1.130)	(-8.768)	(-8.857)	(-9.776)	(-9.848)
Year fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Obs.	10,297	10,297	10,297	10,297	10,297	10,297	10,297	10,297
Adjusted R^2	0.154	0.155	0.104	0.104	0.469	0.469	0.321	0.322

Note The table presents the results of OLS regressions of CSR performance on the presence of professor-directors and other control variables. The dependent variables are Community Donations (Columns 1, 2), Employee Benefits (Columns 3, 4), Diversity Commitment (Columns 5, 6), and CSR (Columns 7, 8). Variable definitions are in the Appendix. All specifications control for year and 2-digit SIC industry fixed-effects. In parentheses are *t*-statistics based on standard errors clustered by firm (Petersen 2009). ***, **, and * indicate statistical significance based on two-sided tests at the 1%, 5%, and 10% level, respectively.

Table 4
OLS regression analysis – CSR performance and professor-directors from different academic disciplines

	Dependent variable			
	Community Donations	Employee Benefits	Diversity Commitment	CSR
Independent variable	(1)	(2)	(3)	(4)
PctPROF (Business)	0.081	0.594	0.488	1.162
	(0.413)	(1.642)	(1.159)	(1.544)
PctPROF (Specialized)	0.711**	0.933**	1.439***	3.084***
	(2.373)	(2.230)	(2.690)	(3.380)
BoardSize	0.015**	-0.001	0.045***	0.060***
	(2.403)	(-0.084)	(3.767)	(3.140)
PctFemale	0.450***	0.485**	5.424***	6.359***
	(3.769)	(2.329)	(18.902)	(13.728)
PctOutsider	0.155*	-0.164	0.445***	0.436
	(1.874)	(-1.186)	(2.599)	(1.619)
PctBusyIndepDir	0.220	-0.273	0.101	0.048
	(1.346)	(-1.333)	(0.371)	(0.108)
IndDirBlock	-0.024	-0.127*	-0.034	-0.185
	(-0.582)	(-1.646)	(-0.291)	(-0.943)
CEOChair	0.011	-0.066**	0.035	-0.021
	(0.598)	(-2.114)	(0.897)	(-0.330)
Market-to-Book	0.011*	0.015*	0.056***	0.082***
	(1.934)	(1.893)	(4.217)	(4.100)
Log (Sales)	0.095***	0.028	0.400***	0.522***
	(6.571)	(1.440)	(16.046)	(11.643)
ROA	-0.097	0.670**	-0.697**	-0.125
	(-0.709)	(2.503)	(-2.303)	(-0.235)
Leverage	-0.134*	-0.367***	-0.708***	-1.208***
	(-1.847)	(-2.890)	(-4.544)	(-4.690)
FirmAge	-0.002**	-0.001	0.003*	-0.000
	(-2.109)	(-0.864)	(1.777)	(-0.038)
ReturnVolatility	-0.272	-0.399	1.835***	1.164
	(-1.201)	(-1.063)	(3.704)	(1.472)
InsiderOwnership	0.101	-0.563**	-0.554	-1.015*
	(0.671)	(-2.143)	(-1.497)	(-1.804)
InstitutionalOwnership	-0.159*	-0.192*	-0.144	-0.495*
	(-1.925)	(-1.655)	(-0.882)	(-1.937)
Intercept	-0.703***	-0.269	-3.850***	-4.821***
	(-5.212)	(-1.159)	(-8.894)	(-11.445)
Year fixed-effects	Yes	Yes	Yes	Yes
Industry fixed-effects	Yes	Yes	Yes	Yes
Number of Obs.	10,297	10,297	10,297	10,297
Adjusted R^2	0.156	0.105	0.470	0.346

Note The table presents the results of OLS regressions of CSR performance on the presence of business and specialized professor-directors and other control variables. The dependent variables are Community Donations (Columns 1), Employee Benefits (Columns 2), Diversity Commitment (Columns 3), and CSR (Columns 4). Variable definitions are in the Appendix. All specifications control for year and 2-digit SIC industry fixed-effects. In parentheses are *t*-statistics based on standard errors clustered by firm (Petersen 2009). ***, **, and * indicate statistical significance based on two-sided tests at the 1%, 5%, and 10% level, respectively.

Table 5
OLS regression analysis - CSR performance and professor-directors with administrative positions

	Dependent variable			
	Community Donations	Employee Benefits	Diversity Commitment	CSR
Independent variable	(1)	(2)	(3)	(4)
PctPROF (Admin)	0.400**	0.469	0.135	1.639*
	(2.021)	(1.269)	(0.315)	(1.891)
PctPROF (No Admin)	0.386*	0.827**	1.181***	2.293***
	(1.822)	(2.571)	(2.972)	(2.754)
BoardSize	0.015**	-0.001	0.045***	0.062***
	(2.405)	(-0.114)	(3.746)	(2.747)
PctFemale	0.434***	0.470**	5.413***	6.893***
	(3.632)	(2.275)	(18.910)	(12.527)
PctOutsider	0.147*	-0.172	0.432**	0.409
	(1.772)	(-1.243)	(2.519)	(1.296)
PctBusyIndepDir	0.226	-0.265	0.116	-0.599
	(1.384)	(-1.294)	(0.426)	(-1.154)
IndDirBlock	-0.024	-0.127*	-0.034	-0.236
	(-0.580)	(-1.646)	(-0.292)	(-1.141)
CEOChair	0.011	-0.067**	0.035	-0.014
	(0.589)	(-2.135)	(0.895)	(-0.189)
Market-to-Book	0.012**	0.016**	0.057***	0.109***
	(2.078)	(1.962)	(4.330)	(4.545)
Log (Sales)	0.094***	0.028	0.402***	0.587***
	(6.559)	(1.450)	(16.130)	(10.773)
ROA	-0.105	0.664**	-0.716**	-0.066
	(-0.772)	(2.480)	(-2.375)	(-0.107)
Leverage	-0.141*	-0.371***	-0.713***	-1.246***
	(-1.960)	(-2.923)	(-4.605)	(-4.165)
FirmAge	-0.002**	-0.001	0.003*	-0.003
	(-2.194)	(-0.904)	(1.765)	(-0.739)
ReturnVolatility	-0.284	-0.401	1.836***	0.328
	(-1.255)	(-1.069)	(3.706)	(0.350)
InsiderOwnership	0.075	-0.574**	-0.592	-1.644**
	(0.501)	(-2.187)	(-1.613)	(-2.478)
InstitutionalOwnership	-0.161*	-0.195*	-0.153	-0.604**
	(-1.952)	(-1.677)	(-0.943)	(-1.965)
Intercept	-0.691***	-0.260	-3.841***	-5.253***
	(-5.154)	(-1.129)	(-8.867)	(-9.843)
Year fixed-effects	Yes	Yes	Yes	Yes
Industry fixed-effects	Yes	Yes	Yes	Yes
Number of Obs.	10,297	10,297	10,297	10,297
Adjusted R^2	0.155	0.105	0.470	0.322

Note The table presents the results of OLS regressions of CSR performance on the presence of professor-directors with and without administrative jobs and other control variables. The dependent variables are Community Donations (Columns 1), Employee Benefits (Columns 2), Diversity Commitment (Columns 3), and CSR (Columns 4). Variable definitions are in the Appendix. All specifications control for year and 2-digit SIC industry fixed-effects. In parentheses are *t*-statistics based on standard errors clustered by firm (Petersen 2009). ***, **, and * indicate statistical significance based on two-sided tests at the 1%, 5%, and 10% level, respectively.

Table 6
2SLS regression analysis – CSR performance and professor-directors on the board

	Dependent variable				
	PctPROF	Community Donations	Employee Benefits	Diversity Commitment	CSR
Independent variable	(1)	(2)	(3)	(4)	(5)
Fitted-PctPROF		5.952*	8.419*	29.110**	50.251**
		(1.716)	(1.800)	(2.541)	(2.531)
CONNPROF	0.031***				
	(2.870)				
BoardSize	-0.000	0.015*	-0.001	0.045*	0.063
	(-0.163)	(1.899)	(-0.081)	(1.672)	(1.332)
PctFemale	0.084***	-0.053	-0.211	2.920**	2.658
	(4.341)	(-0.154)	(-0.460)	(2.522)	(1.335)
PctOutsider	0.023**	-0.007	-0.385*	-0.353	-0.929
	(1.956)	(-0.052)	(-1.812)	(-0.693)	(-1.044)
PctBusyIndepDir	-0.060***	0.449*	0.041	1.243*	1.329
	(-3.605)	(1.949)	(0.138)	(1.749)	(1.070)
IndDirBlock	-0.009	0.024	-0.061	0.211	0.182
	(-1.486)	(0.381)	(-0.565)	(0.832)	(0.413)
CEOChair	-0.002	0.018	-0.058	0.068	0.043
	(-0.635)	(0.712)	(-1.501)	(0.774)	(0.279)
Market-to-Book	-0.000	0.014*	0.018*	0.067**	0.127***
	(-0.588)	(1.854)	(1.762)	(2.427)	(2.647)
Log (Sales)	0.004**	0.065**	-0.014	0.249***	0.329**
	(2.549)	(2.454)	(-0.392)	(3.134)	(2.287)
ROA	-0.004	-0.071	0.714**	-0.538	0.231
	(-0.159)	(-0.379)	(2.165)	(-0.708)	(0.176)
Leverage	-0.026**	0.007	-0.168	0.029	0.029
	(-2.433)	(0.055)	(-0.844)	(0.061)	(0.035)
FirmAge	0.000**	-0.004**	-0.003*	-0.005	-0.016*
	(2.232)	(-2.461)	(-1.669)	(-1.010)	(-1.938)
ReturnVolatility	0.045*	-0.527*	-0.743	0.581	-1.790
	(1.277)	(-1.621)	(-1.479)	(0.499)	(-0.867)
InsiderOwnership	0.038	-0.119	-0.842**	-1.572	-3.320*
	(1.285)	(-0.474)	(-2.140)	(-1.542)	(-1.927)
InstitutionalOwnership	-0.003	-0.143	-0.167	-0.049	-0.434
	(-0.313)	(-1.416)	(-1.212)	(-0.138)	(-0.730)
Intercept	-0.037**	-0.191	0.340	-2.857**	-2.118
	(-1.918)	(-0.699)	(0.879)	(-2.592)	(-1.211)
Year fixed-effects	Yes	Yes	Yes	Yes	Yes
Industry fixed-effects	Yes	Yes	Yes	Yes	Yes
Number of Obs.	10,297	10,297	10,297	10,297	10,297
Adjusted R^2	0.094				
Regression type	First-stage IV with fixed effects	IV with fixed effects			

Note The table presents the results of 2SLS regressions of CSR performance on the presence of professor-directors and other control variables. Column (1) presents the first-stage result of the 2SLS regressions. The instrument variable is CONNPROF which is the percentage of non-professor-directors on the board who sit on other boards on which there are professor-directors. Columns (2)-(5) presents the second-stage results of the 2SLS regressions. Variable definitions are in the Appendix. All specifications control for year and 2-digit SIC industry fixed-effects. In parentheses are *t*-statistics based on standard errors clustered by firm (Petersen 2009). ***, **, and * indicate statistical significance based on two-sided tests at the 1%, 5%, and 10% level, respectively.